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## The 157 mpg Loremo (Low Resistance Mobility) LS

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March 3, 2006 Why do we need 1.5 tons of steel to get an 80 kg person from A to B? That's the question Gerhard Heilmaier, Stefan Ruetz and Uli Sommer asked themselves six years ago which led them to form an innovative company named **LoReMo - Low Resistance Mobility**. LoReMo used this week's Geneva Show to introduce its first car - a featherweight (450 kg), highly aerodynamic (Cw value of 0.20) 2+2 auto powered by a 20 PS (15 kw) two-cylinder turbo-diesel motor capable of 1.5 litre/100km (157 mpg) that will sell for 11,000 euro (US\$13,200). Want more speed? The 50 PS (37 kW) three-cylinder turbo-diesel Loremo GT can top 220 km/h (138 mph) returning 2.7 l/100 km (88 mpg) for less than 15,000 euro (US\$18,000).

Bavaria is well-known for its innovative car-makers and Loremo AG is the newest of this breed. Founded in 2000, the company has taken a completely different approach to the automobile: less is more and the most efficient use of energy is not to use it at all.

The Loremo's construction handbook would make an excellent diet recipe.

Slim lines and no unnecessary ballast distinguishes the Loremo from all other cars. Its superior safety concept, excellent aerodynamic characteristics, revolutionary bodywork, the linear cell structure, and a radically new rearaxle keep it in form. It combines the economy of a compact car with the handling and feelings of a sports car. The Loremo LS - light and simple is a car which awakens emotions and yearns for sinuous roads.

### Bodywork and chassis concept

The 95kg (209 lb) lightweight steel chassis - a patented linear cell structure - is one of Loremo's key elements. It performs well-above average in crash simulations and provides excellent handling characteristics with its low center of gravity and torsional stiffness. Longitudinal supports, extend at fender height along the length of the entire vehicle, increase stability and ensure that the linear cell structure remains practically undamaged in offset and side crash-tests. The centrally mounted cross-support, on which the roll bars are mounted, stiffens the longitudinal beams and houses the engine.

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The non-load-bearing, self-supporting, thermoplastic body panels mould to the linear cell structure and help the Loremo to achieve its aerodynamic shape. This material has a number of advantages: it is light weight, weatherproof, scratch-resistant and it is economical. It substitutes the classical paint by a thin film, in the colour of the car, during the manufacturing process. In this way the Loremo receives a high-quality, paint-like surface without environmental damaging paints.

The intelligent, chassis air-guiding system is perfected with the help of lower tire fins and by the air stream optimized chassis design. The Loremo achieves its optimum driving characteristics with its minimized wind resistance and reduced buoyancy.

### Design

Not only is the energy efficiency reflected in the dynamic, elegant lines of the Loremo but also in its sporting nature. The distinctive, powerful front stretches softly into the extended rear.

There is no B-pillar as the panorama roof has no load-bearing function and is simply bolted to the roll-bar. The nose close to the street does away with a monstrous radiator grill and instead an opening provides access to the aerodynamic underside. The LED headlamps give the vehicle both a distinctive look as well as exhibiting tomorrow's display technology.

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Unusually the car is entered from the front for which the entire hood of the car including the windshield is tipped forwards, allowing for upright boarding to the interior. The opened front shows the trunk, which also provides additional 600 mm (24 in) of crumple zone. The vertically-opening tailgate provides the entry to the back seats.

### Interior

The Janusseater - two seats are in front of the pyramidal cross-support and two rear-facing behind it - is equipped with super-light ergonomic seats. The seats, embedded in the linear cell structure, create a feeling of sporty security and comfort. There is plenty of room for sporting equipment or for additional suitcases, if the rear-facing seats are not with passengers.

The spartan, sporty interior design does away with unnecessary fittings and its two-ply plastic construction doesn't need any additional finishing. High quality interior furnishing in alcantara and high-tech fabrics provides spacious luxury and comfort. If required the Loremo LS can be equipped with a simple air-conditioning system, an on-board PC with navigation system, an mp3 player, and a driver information system.

### Technology

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Of particular note is the rear differential-link axle, specially-developed for the Loremo, which combines the advantages of longitudinal- and semi-trailing link axles. With maximum load, the axle is indifferent to toe and camber at full suspension compression. In curves, however, the wheel leans inwards to achieve better lateral traction. An optimal load distribution of 50:50 is achieved by placing the motor centrally and 105/70 R14 low-profile tires give good road holding and perfect straight-line driving.

The 20 PS (15 kw) two-cylinder turbo-diesel motor powers the 450 kg (204 lb) light Loremo LS to up to 160 km/h (100 mph). It accelerates from 0 to 100 km/h (63 mph) in 20 s and its aerodynamic form achieves a Cw value of 0.20.

### Fuel consumption

Thus the Loremo can travel from Munich to Rome (over 800 miles) on just one 20 litre (5 gallon) tank of fuel. At only 384 cm (151 in) long, 136 cm (62 in) wide, the Loremo AG is a very small car. In terms of driving fun the 110 cm (43 in) tall, economical sports car apparently stands up well against its competitors and the purchase price of under EU11,000 euro (US\$13,200) is obviously highly competitive.

Those who want more power can look forward to the Loremo GT. With 50 PS (37 kW) from its three-cylinder turbo-diesel motor it can top 220 km/h (138 mph) with a still fuel-efficient return of 2.7 l/100 km (88 mpg) for a price of less than EU15,000 euro (US\$18,000).

"At the moment", points out Gerhard Heilmaier, president of Loremo AG, "the Loremo LS is primarily an energy-saving, minimalistic body concept. It is an innovation which leaves room for continual development and many variations in both its design and engine. It will certainly influence the automobile future".

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